

Tinghui Zhu

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Education

University of California, Davis	2025/09 – present
<i>Ph.D. in Computer Science.</i> Advisor: Muhao Chen	Davis, CA
Fudan University	2022/09 – 2025/06
<i>M.S. in Computer Science.</i> Advisor: Yanghua Xiao	Shanghai, China
Fudan University	2018/09 – 2022/06
<i>B.S. in Computer Science.</i> Advisor: Yanghua Xiao	Shanghai, China

Publications

* Indicates equal contributions.

1. **Tinghui Zhu***, Kai Zhang*, Muhao Chen, Yu Su. Is Extending Modality The Right Path Towards Omni-Modality?. *Under Review*, 2025.
2. Sirui Xia, Aili Chen, Xintao Wang, **Tinghui Zhu**, Yikai Zhang, Jiangjie Chen, Yanghua Xiao. Can LLMs Learn to Map the World from Local Descriptions?. *Under Review*, 2025.
3. Caiyu Hu, Yikai Zhang, **Tinghui Zhu**, Yiwei Ye, Yanghua Xiao. MCiteBench: A Multimodal Benchmark for Generating Text with Citations. In *Proceedings of the 30th Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2025.
4. **Tinghui Zhu**, Qin Liu, Fei Wang, Zhengzhong Tu, Muhao Chen. Unraveling Cross-Modality Knowledge Conflicts in Large Vision-Language Models. *Under Review*, 2024.
5. **Tinghui Zhu***, Kai Zhang*, Jian Xie, Yu Su. Deductive Beam Search: Decoding Deducible Rationale for Chain-of-Thought Reasoning. In *Proceedings of the 1st Conference on Language Modeling (COLM)*, 2024.
6. Siye Wu*, Jian Xie*, Jiangjie Chen, **Tinghui Zhu**, Kai Zhang, Yanghua Xiao. How Easily do Irrelevant Inputs Skew the Responses of Large Language Models?. In *Proceedings of the 1st Conference on Language Modeling (COLM)*, 2024.
7. Jiangjie Chen, Xintao Wang, Rui Xu, Siyu Yuan, Yikai Zhang, Wei Shi, Jian Xie, Shuang Li, Ruihan Yang, **Tinghui Zhu**, Aili Chen, Nianqi Li, Lida Chen, Caiyu Hu, Siye Wu, Scott Ren, Ziquan Fu, Yanghua Xiao. From Persona to Personalization: A Survey on Role-Playing Language Agents. *Transactions on Machine Learning Research (TMLR)*, 2024.
8. Jian Xie*, Kai Zhang*, Jiangjie Chen, **Tinghui Zhu**, Renze Lou, Yuandong Tian, Yanghua Xiao, Yu Su. TravelPlanner: A Benchmark for Real-World Planning with Language Agents, In *Proceedings of the 42nd International Conference on Machine Learning (ICML Spotlight)*, 2024.
9. **Tinghui Zhu**, Jingping Liu, Haiyun Jiang, Yanghua Xiao, Zongyu Wang, Rui Xie, Yunsen Xian. Towards Visual Taxonomy Expansion. In *Proceedings of the 32nd ACM Multimedia Conference (ACMMM)*, 2023.
10. Chao Wang*, **Tinghui Zhu***, Jingping Liu, Yanghua Xiao. SLR:A Million-Scale Comprehensive Crossword Dataset for Simultaneous Learning and Reasoning. *Neurocomputing*, 2023.
11. Lihan Chen, **Tinghui Zhu**, Jingping Liu, Jiaqing Liang, Yanghua Xiao. End-to-end Entity Linking with Hierarchical Reinforcement Learning. In *Proceedings of the 37th Annual AAAI Conference on Artificial Intelligence (AAAI)*, 2023.

Experiences

University of California, Davis, LUKA Group

2024/04 – 2025/06

Research Intern, Mentor: Muhao Chen

- Analyzed the impact of modality extension methods comprehensively. Performed model merging to mitigate the negative effects of modality fine-tuning and analyzed the cost and effects of omni-modal models.
- Defined the issue of cross-modality parametric knowledge conflicts. Proposed a systematic way of studying cross-modality parametric knowledge conflicts, including designing a pipeline for detection, a contrastive metric for interpretation, and multiple inference interference approaches for mitigation.

The Ohio State University, OSU NLP Group

2023/07 – 2024/02

Research Intern, Mentor: Yu Su

- Proposed to integrate step-wise beam search with deductive reasoning to mitigate accumulative errors in LLMs. Proposed a bootstrapping method to synthesize false reasoning steps which simulate errors from LLMs. Conducted experiments on models across a wide range of scales, demonstrating the generalizability of the proposed method. [COLM 2024]
- Collaborated to construct *TravelPlanner*, a benchmark for evaluating language agents in tool-use and complex planning within multiple constraints. [ICML 2024 spotlight]

Meituan, NLU group

2022/06 – 2023/03

Research Intern, Mentor: Rui Xie

- Proposed to enhance conceptual representations with visual features. Adopted prototypical contrastive learning to generate visual hypernyms. Developed the first method for taxonomy expansion using visual features. [ACMMM 2023]
- Constructed a pipeline which determines whether hypernymy holds for a given query and a clicked item, allowing autonomous taxonomy expansion from user history.

Fudan University, Knowledge Works Research Laboratory

2022/07 – 2025/06

Graduate Researcher, Advisor: Yanghua Xiao

- Collaborated to develop a reinforcement learning entity linking approach. Defined entity linking as a sequential decision problem and applied the hierarchical reinforcement learning. [AAAI 2023]
- Constructed a large-scale crossword dataset for evaluating ambiguous language understanding and complex reasoning ability that requires the model to generate answers for a given clue. Evaluated various question-answering methods using language models. [Neurocomputing]
- Collaborated to analyze how LLMs perform under irrelevant but semantically related information, pointing out that they are easily distracted by this information. Fitted the constructed data distribution with real-world data distribution from a typical retriever. [COLM 2024]
- Collaborated on a survey about role-playing language agents, including demographic persona, character persona, and individualized persona. [TMLR]

Awards

- **Graduate Fellowship**, University of California, Davis
- **National Scholarship** (top 1%), Fudan University

2025/09

2023/10

Services

Reviewer for ACL 2023/24/25, COLM 2024/25, EMNLP 2024/25, ICLR 2025/26.